

1582 AD

Pope Gregory shifted the addition of the leap day in February from just before February 25 (Known as Ante diem sexto Kalendas MARTIUS, the 6th day before the Calends of MARCH) to the end of February.

1582

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Astronomers devised a system of days numbered in a continuous sequence from a fixed point in time. The starting point, the JULIAN era or period, 4713 BC, was fabricated in the 16th century by the French philologist Joseph ~~Scaliger~~ SCALIGER, who rolled back three major time cycles - two purely astronomical and one socio-political - to a fixed

point of coincidence - the period that includes all possible combinations of the days of the week with the 1st of the year (28 years); the period over which a given phase of the moon is returned to the same date of the seasonal year

(19 years, the so-called Metonic Cycle and the unnatural 15-year cycle of indiction, a period during which certain governmental acts took place (conturbatio) (collect taxes; census etc)

the product of these 3 cycles - 28 times
 19 times 15 - is 7,980 years. In
 the course of this period no two
 years can be written down with

identical set of numbers in all three
 subcycles. Time calculations in
 this system are relatively simple.
 For example, Pearl Harbor was
 bombed on JD 2,431,247. By simple
 subtraction, we can readily find

~~that that is~~ on Julian day 2,430,336
and the invasion of Normandy took
place on ~~JD 2,431,247~~. By simple
subtraction ^{JD 2,431,248} we can readily find
that these major events of the
Second World War were 912
days apart.

JD 0 starts 1/1, 4713 BC = 1/1, -4712
(There is a year 0.) at noon Greenwich
Mean time JD 1 starts 1/2

1582

The Gregorian Cal. was adopted
in various Italian states; in SPAIN,
in PORTUGAL, and in FRANCE.

1582/1540-1609

JULIAN PERIOD

obviously a Cal. showing months and days is convenient for counting from the civil point of view, but it is not suitable means for counting back long periods of time to find out how many days have elapsed since the occurrence of some astronomical phenomenon or civil event. This problem was tackled in 1582 by the Hellenic Protestant scholar Joseph SCALIGER (1540-1609). He realized that during a period made up of the product of the solar cycle, lunar cycle, and cycle of indictions, i.e. $28 \times 19 \times 15$ or 7980 yrs, no two years can be expressed by the same number in all three cycles. He proposed the use of this

JD 0 starts 12 noon GMT 1111 4713 BC = 1911-4712

because there are 0.0

period for chronological purposes, and named
it the Julian period in honour of his father.
SCALIGER fixed its commencement arbitrarily
at Jan 1, 4713 B.C. thinking this would be
early enough to include all historical events
and all precisely observed and recorded
astronomical phenomena. The great value is that
each day is consecutively numbered from Jan 1, 4713 B.C.,
so that the interval between any previous event
and the present time can be precisely ascertained. By
international agreement among astronomers, each
Julian day is taken as commencing at noon so that
observations made during the night can be
referred to by one calendar date (noon GMT is
London standard time)

1582

Calendar

Pope Gregory XIII dropped 10 days out of the calendar; thus the equinox was moved from 11 March date on which it occurred in 1582 to 21 March. He wrote a decree declaring that the day after 4 October 1582 would be 15 October 1582.

The second step of the Gregorian reform; only those century years

divisible by 400 shall be leap years.
Thus, while A.D. 1600 and 2000
would be leap years. A.D. 1700, 1800, and
1900 would not.

This cut the average year to 365.2425
or only 0.0003 longer than the true year
of the seasons. So near perfect was the
new rule that it would be off 1 day in
3,300 yrs. This was adopted by all Catholic
countries but resisted by others.

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Calendar

The recession of the real year with respect to any artificial account of it had grown to 11 days; Easter Sunday began on the average to fall later and later in the season and thus to appear warmer & warmer. In 1582, Pope Gregory X^{III} appointed a Commission to deal anew with the reform issue. As was the case of a millennium and a half before, two actions were needed to ~~be calculated with astronomical accuracy~~. After all, as the

assure that the future festival date would arrive at the proper location in the year of the seasons: the equinox needed to be related to its proper place in the year cycle; and the commission needed to devise a mechanism to hold it fixed.

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In Caesar's Calendar there was a source of error in the estimate of the odd fraction as 0.25 day rather than 0.2422 day; and by the 16th century the accumulated error amounted to 10 days.

In 1582 Pope Gregory X III ordered the so-called Gregorian reform, omitting 10 days of the year (the day following Oct. 4 was Oct. 15) to bring cal. & sun into correspondence again, and prescribing

that in the future the intercalary day be omitted from all years divisible by 100, except those divisible by 400; thus 1700, 1800, and 1900 were 365-day years, while 1600 was a leap year and 2000 will be a leap year.

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GREGORIAN YEAR

The civil year according to the correction introduced by Pope Gregory XIII in 1582. The equinox which occurred on 25 March in the time of Julius Caesar fell on 11 MARCH in the year 1582. This was because the Julian calculation of $365\frac{1}{4}$ days for a year was 11 min 14 Sec. too long. Gregory suppressed 10 days by altering 5 Oct to 15 Oct, thus making the equinox fall on 21 March

1583. Further simple arrangements prevented the recurrence of a similar error in the future. The change was soon adopted by most CATHOLIC countries, but the PROTESTANT countries did not accept it until much later. The NEW STYLE was not adopted by ENGLAND and SCOTLAND until 1752. At the same time the beginning of the civil or legal year was altered from 25 MAR to 1 Jan. a change adopted in Scotland in 1600.